equally ingenious and persistent student of this good old enduring problem of acquired characters.

V. L. K.

PARIS, March, 1909.

DE VRIES'S SPECIES AND VARIETIES

Species and Varieties.—About two years ago De Vries's "Species and Varieties: their Origin by Mutation" was translated into German. A translation[1] of the same work has now appeared in French and no doubt it will ere long find a place in the literature of a number of other tongues.

As the first book which presented in a popular form the distinction between fluctuations and mutations, the world-wide circulation of this book means much for the advancement of modern biological conceptions. This is particularly true because a just delimitation of these two kinds of variations has been made, and can be made, only through the application of experimental methods. The result of the enlarged circulation of this work must be to stimulate the use of these methods among the biologists of every country in which it is made accessible.

The French edition was translated by Dr. L. Blaringhem, who is already well known because of his numerous studies on variations apparently induced by traumatism. He was a student of the well-known French biologist, the late Professor A. Giard, and to the memory of the latter, the French edition is dedicated. Professor Giard was to have written a preface to this edition, but illness which later resulted in his death rendered this impossible. A very brief prefatory note by the translator and one by the author are the only additions to the text of the English edition.

Already some subjects considered in this book could advangeously receive a somewhat different treatment, but it is perhaps better to allow the book to stand as it was originally written, so to take its position as a classic, retaining a historical value when its current biological value shall have been eclipsed by other works presenting the results of subsequent experimentation. This is evidently the attitude assumed by the author and

[1] De Vries, H. "Espèces et variétés: leur naissance par Mutation," *Traduit de l'Anglais par L. Blaringhem,* pp. viii + 548, 1909. Paris: Felix Alcan.

translator, in presenting this edition without amendment of any kind.

GEORGE H. SHULL.

EMBRYOLOGY

On the Totipotence of the First Two Blastomeres of the Frog's Egg.—It was found by Roux that if one of the first two blastomeres of the frog's egg is injured with a hot needle, the uninjured blastomere will develop into a *half* embryo. Morgan found, however, that if the egg were kept in an inverted position after the injury of one blastomere, the other would develop into a *whole* embryo. He attributes this difference to the rearrangement of the "mosaic" structure of the egg by flowing of substance, of different specific gravity (Born). However, he suggested to me that the half embryo obtained by Roux might be due to the presence of the injured blastomere. In Triton, when the first two blastomeres are separated, each gives rise to a whole embryo (in case the first cleavage plane would have become the median plane). I have been trying various methods for removing one of the first two blastomeres of the frog's egg, and succeeded in getting a small per cent. of the remaining blastomeres (of *Chorophilus triseriatus*) to develop. The puncture of the egg membrane caused it to shrink down on the remaining blastomere and left an opening for bacteria. Although there was a great mortality in the operated eggs, quite a number of them gastrulated (*as wholes*), and several of them reached the tadpole stage. The pressure of the egg membrane seemed to hinder their further development and none of them hatched, although one lived until I fixed it for sectioning, after the control eggs had hatched. In no case was a half gastrula found, and as this is the earliest stage at which the bilateral symmetry is very pronounced, *all of the embryos were wholes as far as could be observed.* Probably all operated eggs in which the median plane would not have coincided with the first cleavage plane died before gastrulation.

J. F. MCCLENDON.

UNIVERSITY OF MISSOURI, April 8, 1909.